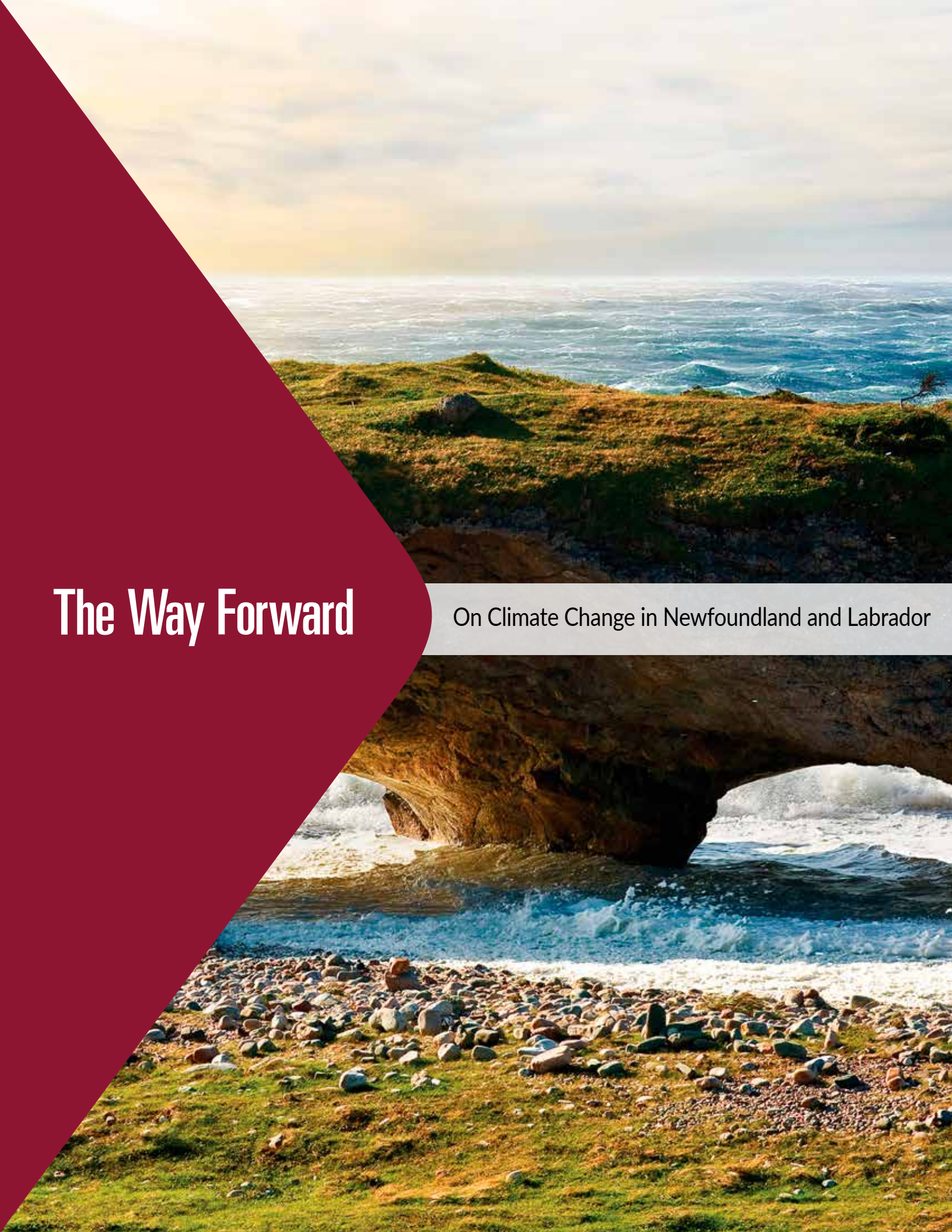




# The Way Forward

On Climate Change in Newfoundland and Labrador

VISIT...

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*Caliente*.COM



# Table of Contents

|            |                                                                       |           |
|------------|-----------------------------------------------------------------------|-----------|
| <b>1.0</b> | <b>Introduction .....</b>                                             | <b>4</b>  |
| 1.1        | Newfoundland and Labrador's Vision for Climate Action.....            | 5         |
| 1.2        | Why Climate Change Matters to Newfoundland and Labrador.....          | 6         |
| <br>       |                                                                       |           |
| <b>2.0</b> | <b>The Way Forward on Climate Change .....</b>                        | <b>9</b>  |
| 2.1        | Government Leadership.....                                            | 9         |
| 2.2        | Public and Stakeholder Engagement .....                               | 10        |
| 2.3        | Indigenous and Northern Perspectives.....                             | 10        |
| <br>       |                                                                       |           |
| <b>3.0</b> | <b>Our Targets - Improving Climate Change Outcomes.....</b>           | <b>12</b> |
| <br>       |                                                                       |           |
| <b>4.0</b> | <b>Our Focus Areas.....</b>                                           | <b>14</b> |
| 4.1        | Carbon Program.....                                                   | 15        |
| 4.2        | Clean Economy .....                                                   | 21        |
| 4.3        | Transportation .....                                                  | 25        |
| 4.4        | Agriculture, Forestry, Fisheries and Natural Areas .....              | 29        |
| 4.5        | Energy Use in Buildings and Homes.....                                | 33        |
| 4.6        | Infrastructure, Planning and Development .....                        | 37        |
| 4.7        | Health and Well-being.....                                            | 41        |
| 4.8        | Education and Outreach .....                                          | 45        |
| <br>       |                                                                       |           |
| <b>5.0</b> | <b>Moving Forward on Climate Change: Reporting Our Progress .....</b> | <b>49</b> |



# 1.0 Introduction

The science is clear. Climate change is happening and is being caused by human activities such as burning fossil fuels and deforestation. The impacts are already being felt - each of the last three decades has been the warmest on record and warming in the Arctic is occurring twice as fast as the rest of the world. This is affecting plants, animals and people around the world and, unless further action is taken, more severe impacts will follow.

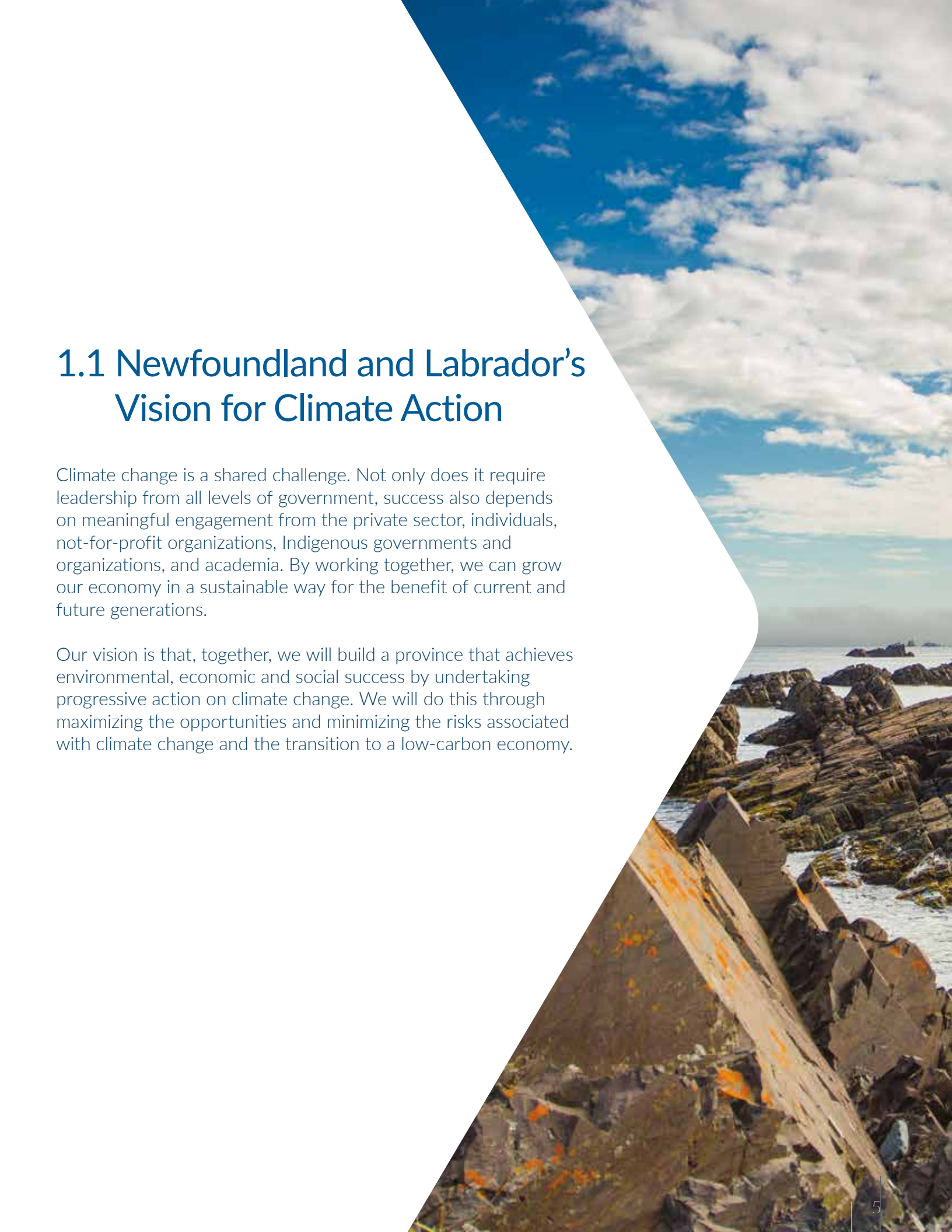
While climate change is one of the most challenging long-term issues facing the world today, solutions exist. It is possible to sustain strong economic growth while responding to climate change, but collective action is needed. In November 2016, the Paris Agreement on climate change came into force; to date, 185 countries have ratified the Agreement, including Canada. This is a landmark international commitment to strengthen urgent action on climate change.

Internationally and within Canada, many governments have positioned themselves as leaders in the fight against climate change. They are taking ambitious action to ensure their jurisdictions are prepared for the transition to a low-carbon global economy, can capitalize on new economic opportunities, and can ensure infrastructure is both resilient and sustainable.

Through the Pan-Canadian Framework, the Provincial Government committed to reduce greenhouse gas (GHG) emissions from all sectors of the economy, stimulate clean innovation and growth, build resilience to a changing climate, and develop a carbon program tailored to meet the unique circumstances of our province. This creates an opportunity to diversify our economy and create new jobs. Newfoundland and Labrador joined the Federal Government and other provinces and territories in adopting the Pan-Canadian Framework on Clean Growth and Climate Change in December 2016. The framework is a collaborative, national approach to address climate change and grow the clean economy.

Through the Pan-Canadian Framework, the Provincial Government committed to reduce greenhouse gas (GHG) emissions from all sectors of the economy, stimulate clean innovation and growth, build resilience to a changing climate, and develop an approach to carbon pricing tailored to meet the unique circumstances of our province. The development of our provincial plan has benefited from public consultation and engagement with stakeholders and Indigenous organizations and governments. This new Climate Change Action Plan, entitled “The Way Forward on Climate Change”, sets out our provincial approach to climate action for the next five years.





## 1.1 Newfoundland and Labrador's Vision for Climate Action

Climate change is a shared challenge. Not only does it require leadership from all levels of government, success also depends on meaningful engagement from the private sector, individuals, not-for-profit organizations, Indigenous governments and organizations, and academia. By working together, we can grow our economy in a sustainable way for the benefit of current and future generations.

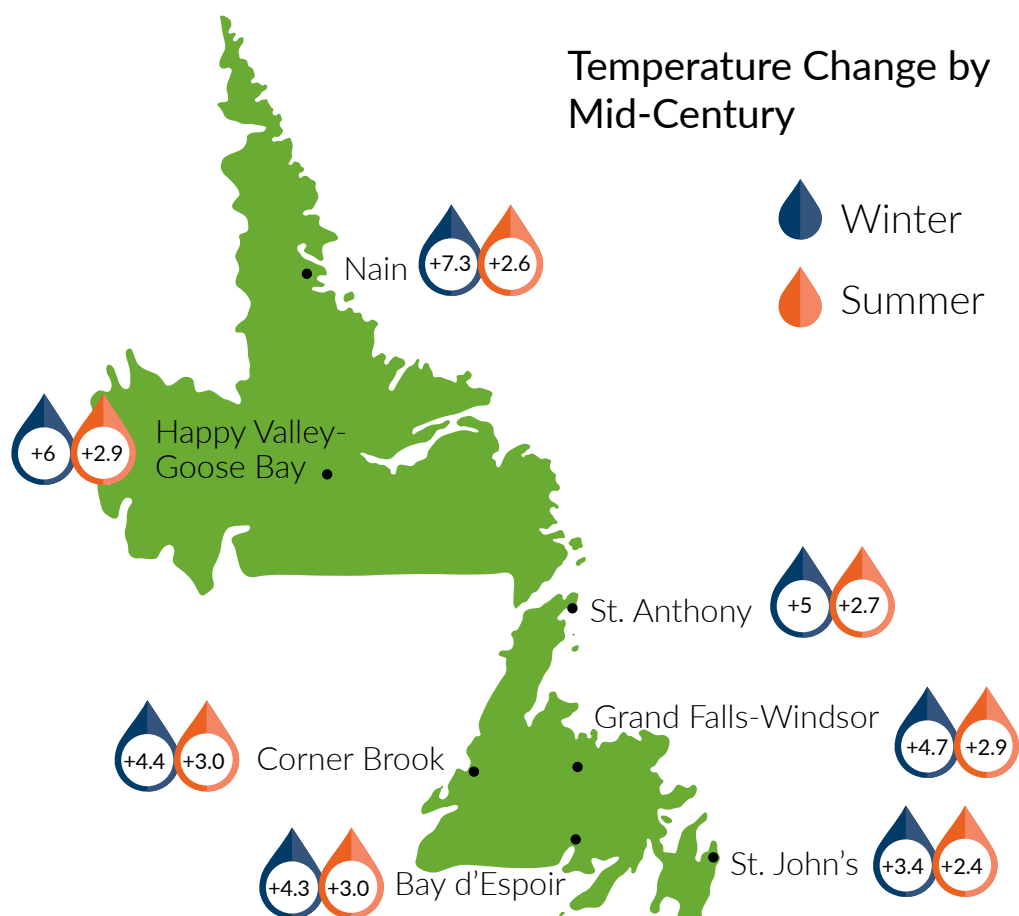
Our vision is that, together, we will build a province that achieves environmental, economic and social success by undertaking progressive action on climate change. We will do this through maximizing the opportunities and minimizing the risks associated with climate change and the transition to a low-carbon economy.



## 1.2 Why Climate Change Matters to Newfoundland and Labrador

Newfoundland and Labrador is already experiencing the effects of climate change. Average annual temperatures are approximately  $0.8^{\circ}\text{C}$  above historical norms, the frequency of hurricanes and tropical storms have doubled in comparison to the last century, and coastal erosion, sea-level rise and sea surge are impacting coastal and marine areas. As a result, the province is experiencing increased permafrost melt, flooding, and infrastructure damage, reduced sea ice, and greater risk from new invasive species and infectious diseases that could affect plant, animal and human health, as well as changes in animal habitat affecting species such as caribou.

Image 1.1 shows projected changes in average summer and winter temperatures for Newfoundland and Labrador for the mid-century compared to the end of the last century. The magnitude and speed of the projected change is significant. For example, average temperature increases of over  $7^{\circ}\text{C}$  are anticipated in northern Labrador in the winter season by mid-century.



**Image 1.1.** Temperature Projections for Newfoundland and Labrador, 2018, data available at [exec.gov.nl.ca/exec/occ/climate-data/index.html](http://exec.gov.nl.ca/exec/occ/climate-data/index.html)



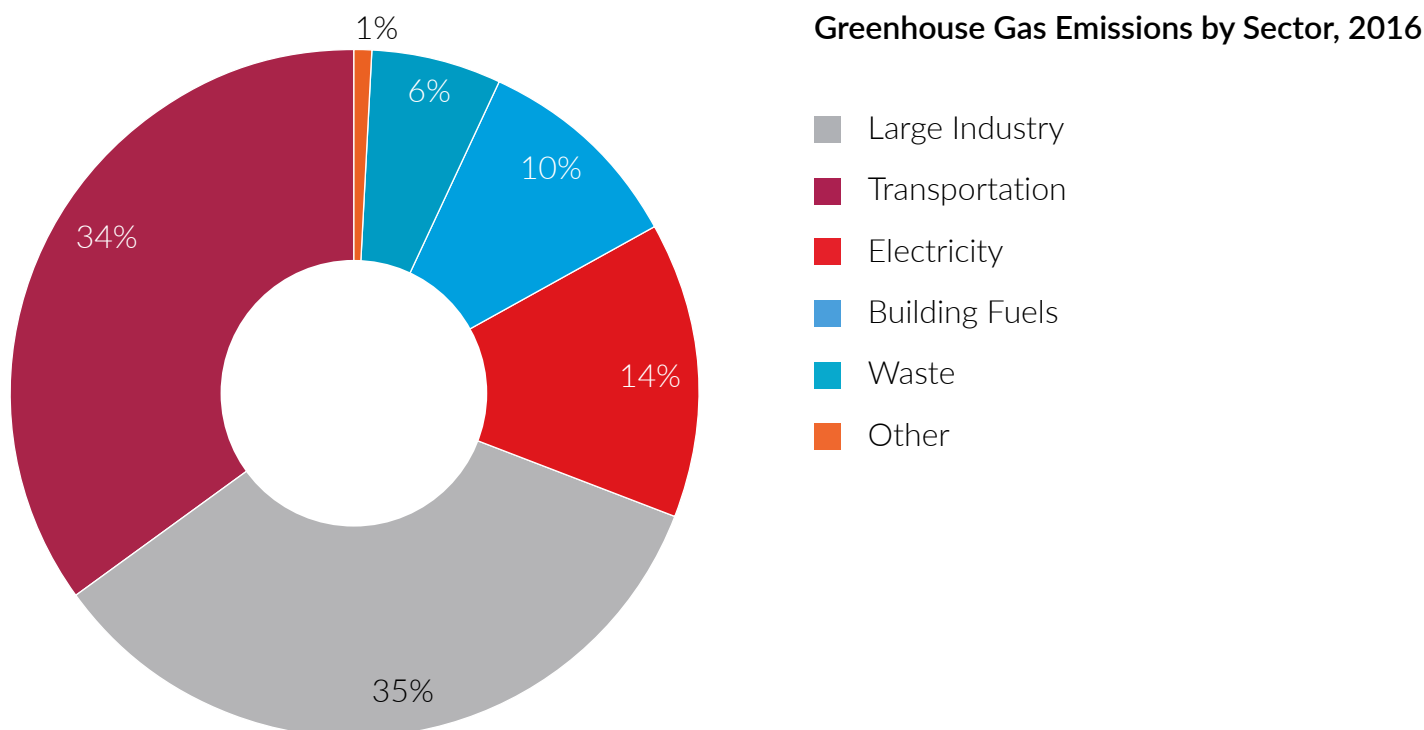
To put this in perspective, there is only about 5°C difference in today's average global temperature compared to the last ice age. The international community has committed to limit the average global temperature increase to a maximum of 2°C above pre-industrial levels, and ideally no more than 1.5°C, to avoid dangerous impacts, as the Earth's biological and physical systems cannot adapt well to the rate of change forecasted. In Newfoundland and Labrador, the rate of temperature growth could shorten the winter season by as much as four to five weeks in some locations impacting transportation routes in northern Labrador and winter tourism. Extreme storm events could result in an increase of precipitation by over 20 per cent or more, enhancing the likelihood and magnitude of flooding, and sea levels could rise by a half meter, putting coastal infrastructure at risk.

Although climate change will bring challenges, it will also bring new opportunities. Newfoundland and Labrador has vast renewable energy resources that can reduce GHG emissions in our province and elsewhere. There are also opportunities for clean technology development and deployment at home and abroad, as markets for clean goods, services and processes continue to grow. Consumers are also increasingly demanding goods and services that are from sustainable sources, have lower carbon footprints and are more energy efficient.

Tackling climate change requires effective action on two fronts, simultaneously: adapting to unavoidable impacts to improve our province's resilience, and reducing GHG emissions to avoid worse impacts in the future. Adaptation requires improving our understanding of how the province will be impacted by climate change, building awareness and capacity about the implications for different sectors, and appropriately integrating climate considerations into decision-making. Mitigation requires reducing GHG emissions in a cost-effective manner to foster environmental progress and clean economic growth.

Given the urgency and severity of the issue, the Provincial Government, along with other provinces and territories in Canada and most countries around the world, has adopted GHG reduction targets that are consistent with what science indicates is necessary to avoid dangerous climate change. Given the scale and urgency of the problem, these targets are intended to be challenging. For example, in 2001, as a member of the Conference of New England Governors and Eastern Canadian Premiers, the Provincial Government committed to a challenging regional target to reduce GHG emissions by 10 per cent below 1990 levels by 2020 and between 75-85% below 2001 levels by 2050; these targets were both subsequently adopted by the Government of Newfoundland and Labrador on a province-specific basis.





**Image 1.2:** Greenhouse Gas Emissions by Sector in Newfoundland and Labrador, 2016

Considerable strides have been made to decouple economic growth from GHG emissions. Between 1990 and 2016, real Gross Domestic Product in Newfoundland and Labrador grew by 74 per cent while GHG emissions in the province increased by only 13.4 per cent. However, despite this progress, the Provincial Government is not on track to meet its 2020 target, even with the Muskrat Falls development and the forthcoming closure of Holyrood Generating Station.

Current GHG projections forecast an increase in emissions in Newfoundland and Labrador in 2020 relative to 1990 primarily due to industrial growth. The Provincial Government remains committed to making progress toward its 2020 GHG reduction target and to further reducing GHG emissions over the longer term, and this plan sets out additional measures that will be put in place.

Image 1.2 shows Newfoundland and Labrador's GHG emissions by economic sector in 2016. The largest sources of emissions were large industry, which includes oil refining, mining, offshore petroleum and newsprint, and road, marine and air transportation, which accounted for 35 and 34 per cent of provincial GHG emissions respectively. Other significant sources included electricity generation, fuel use in buildings, and methane released from waste.

There is no easy, single measure that will achieve the GHG reductions needed. This is for a number of reasons, including the fact that electricity will be largely decarbonized after the Muskrat Falls development comes online. In addition, the province's small and dispersed population limits opportunities for public transit, and there is no access to natural gas. Further, large industry must remain competitive in international markets while reducing their emissions and the offshore petroleum sector has limited scope to reduce their emissions on-site. Therefore, flexible approaches are required that engage all sectors of the economy, promote ongoing progress, change behaviour, encourage innovation, and ensure that the province is prepared to transition to, and prosper in, a low-carbon global economy.



## 2.0 The Way Forward on Climate Change

Achieving our vision requires new action and sustained effort over time. The Way Forward on Climate Change is a collaborative, 5-year plan that requires action across the whole of government. It will guide provincial action and support implementation of the Pan-Canadian Framework. The Provincial Government alone, however, cannot achieve the objectives in this plan. This will require ongoing engagement and collaboration with partners, including federal, provincial, territorial, municipal and Indigenous governments and organizations, industry, business, academia, and non-governmental organizations, as well as continued outreach to, and support of, Newfoundlanders and Labradorians.

The Way Forward on Climate Change outlines the initiatives we will collectively implement to achieve our objectives. The majority of the actions outlined, such as decarbonizing the electricity sector, introducing a carbon program, and building capacity to enhance climate resilience, will be completed within the timeframe of this plan. At the same time, long-term, sustained action that goes beyond the 5-year period will be required to achieve long-term, deeper reductions in GHG emissions, such as developing and deploying the technologies necessary to decarbonize the transportation sector and grow the clean economy. Integrating climate considerations into public and private sector investment, infrastructure, and other decision-making processes, to build resilience to the impacts of climate change, will also require ongoing effort. The plan will be a living document that government will challenge itself to strengthen over time, as and when further measures and initiatives are identified and can be rolled out. Action on climate change will require sustained effort over multiple five-year planning cycles.

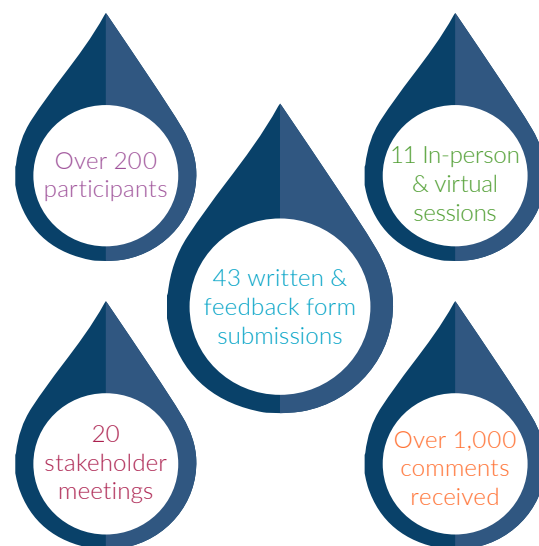
### 2.1 Government Leadership

The public sector has an important role to play in taking action on climate change. Through developing appropriate policies, regulations and programs; leading by example in its own operations; and raising awareness and understanding of climate change, governments show leadership. The Government of Newfoundland and Labrador owns or leases over 1,000 buildings and structures, operates over 3,000 vehicles and employs over 45,000 people. Further to this, it procures over \$3.5 billion annually in goods and services such as equipment, supplies, travel, and building leases. This presents a significant opportunity. By integrating climate change considerations into our decision-making processes, infrastructure investments, regulations, policies, operations, and procurement, we will reduce GHG emissions, build resilience to climate change impacts and transform markets

for goods and services that are energy efficient and emit fewer emissions. By removing barriers to the availability of such goods in the marketplace, governments can accelerate their acceptance and adoption by consumers. Over the long-term, this work will inform and complement actions necessary to move towards a carbon-neutral government, a priority under the Pan-Canadian Framework.

## 2.2 Public and Stakeholder Engagement

A province-wide public consultation process informed the development of this plan. To ensure transparency and adhere to best practices in public engagement, a “What We Heard” summary document, summarizing input from the engagement process, as well as all feedback and written submissions in raw, unedited format, have been made available online. In addition, a parallel process was advanced with stakeholders, government departments and agencies, as well as Indigenous organizations and governments to solicit input into this plan.



## 2.3 Indigenous and Northern Perspectives

Taking action on climate change is a priority for Indigenous peoples and northern communities of the province that are most impacted by the warming of the Arctic. During the consultation process, we engaged in dialogue with Indigenous governments and organizations and with northern community leaders to better understand their unique challenges and opportunities.

Indigenous peoples are disproportionately affected by climate change. This is especially true in remote and northern areas where more rapid warming has already begun to impact Arctic sea ice conditions and safety, permafrost stability, winter transportation routes and seasonal ferry services; as well as access to country food, associated traditional and cultural activities, and imported goods and services. More broadly, Indigenous communities across the province are affected by sea-level rise and changes in the natural environment. These changes are impacting the relationship between Indigenous peoples, the environment and its resources.

Newfoundland and Labrador is committed to ongoing collaboration with Indigenous governments, organizations and northern communities to advance climate action, recognizing their unique needs, concerns, opportunities, and leadership. The Government of Newfoundland and Labrador will respect the rights and concerns of Indigenous peoples as we implement this plan, and will engage meaningfully to take action on climate change together, including through participation in initiatives such as the development of the federally-led Arctic Policy Framework, Northern Adaptation Strategy, and the Northern Transportation Adaptation Initiative.

**Indigenous Leadership on Climate Change: Indigenous governments and organizations have demonstrated their climate leadership through advancing and supporting initiatives to build resilience to the impacts of climate change.**

- ▶ Inuit Tapiriit Kanatami developed 'Inuit Priorities for Canada's Climate Strategy: A Canadian Inuit Vision for Our Common Future in Our Homelands', a report providing an overview of climate adaptation needs for Canadian Inuit, including in northern Labrador.
- ▶ SmartICE was developed to monitor ice conditions in northern Labrador, integrating traditional knowledge of sea ice with advanced data acquisition and remote monitoring technology. This is a collaborative initiative between traditional Inuit ice experts, geographers at Memorial University, industry, as well as the Nunatsiavut Government, with support from the Federal and Provincial Governments. SmartICE continues to grow, and in 2018 funding was announced to support the development of a production facility in Nain to manufacture "Smart Buoy" prototypes, which measure sea ice thickness.
- ▶ Miawpukek First Nation has improved community resilience to climate change through a bioremediation initiative involving the installation of gabion cages, wattle fences, and tree planting to stabilize the eroding clay bank.
- ▶ The Nunatsiavut Climate Change Committee on Adaptation has been established to advance climate change adaptation in the Nunatsiavut region, and provide guidance and expertise to ensure that all projects funded through Crown-Indigenous Relations and Northern Affairs Canada's (CIRNA) Climate Change Preparedness in the North Program are aligned with local and regional priorities.







## 3.0 Our Targets – Improving Climate Change Outcomes

GHG reduction targets are intended to be challenging - to motivate action and raise levels of ambition. Given the urgency and severity of the issue, the Provincial Government, along with the Federal Government and most other provinces and territories in Canada, has adopted short and long-term GHG reduction targets that align with what science indicates is necessary to avoid the most serious climate change impacts by the end of this century. The scale of long-term reduction in GHG emissions needed will require both the development and application of technologies that do not exist today and sustained effort by governments and all sectors.

In 2007, the Provincial Government committed to reduce GHG emissions by 10 per cent below 1990 levels by 2020, and by 75 to 85 per cent below 2001 levels by 2050. As outlined above, while the province has implemented measures to reduce emissions and publicly reported on actions implemented as part of the 2011 Climate Change Action Plan, it is not on track to meet its 2020 target. However, this plan puts in place additional measures to close the gap and achieve deeper long-term GHG reductions.

In 2015, in recognition of the importance of tracking progress between 2020 and 2050, the province joined other members of the Conference of New England Governors and Eastern Canadian Provinces in adopting a regional GHG reduction marker for 2030. The marker is to reduce regional GHG emissions by 35 to 45 per cent below the 1990 regional GHG emissions level. Although the high penetration of renewable electricity, lack of access to natural gas, and restricted opportunities for public transit limit the options available to reduce GHG emissions within Newfoundland and

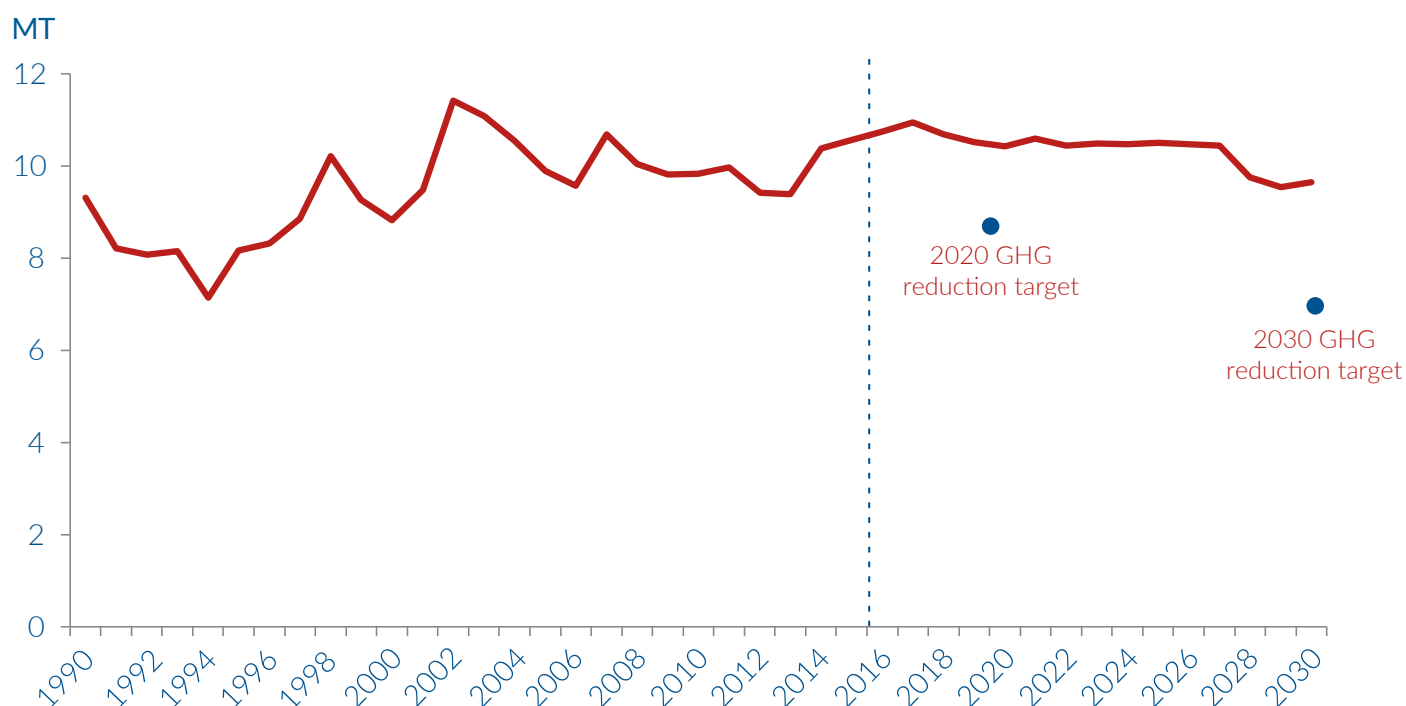


Labrador compared to other jurisdictions, the province's clean energy exports enable it to make a meaningful contribution to regional GHG reductions. Once the Muskrat Falls hydroelectric development is operational, one terawatt of clean electricity will be exported to Nova Scotia to reduce their dependence on coal-fired electricity and a further two terawatts will be available for export to other jurisdictions.

The Provincial Government also believes it is important for Newfoundland and Labrador to adopt a province-specific target for 2030 to guide its actions going forward. Through this plan, the province will strive to reduce provincial GHG emissions by 30 per cent below its 2005 GHG emissions level. This ambitious target aligns with the Federal Government's national 2030 GHG reduction target. This new province-specific target for 2030, when combined with clean electricity exports to reduce GHG emissions in other jurisdictions, will also allow the province to contribute a fair share to the regional NEG-ECP marker for 2030.

The scale of the required long-term reduction in GHG emissions is enormous. It will require the development and application of technologies that do not exist today and sustained effort by government and the private sector over multiple planning cycles, as well as dealing with long-term uncertainties. Given these challenges, the Provincial Government will ensure that regulatory, policy and program actions taken over multiple five-year planning cycles continue to make progress on the challenging but critically important issue of climate change, and that our government continues to work in close partnership with others.

## GHG Emissions Newfoundland and Labrador 1990-2016 (actual), 2017-2030 (projected)



1990-2016 data based on National Inventory data. Estimates subject to change. Projections developed by the province. MT stands for million tonnes



## 4.0 Our Focus Areas

This plan is organized into eight focus areas which outline government's approach to taking action on climate change. In moving forward on these focus areas with our partners, we will achieve better climate change outcomes and contribute to building a stronger economic foundation as we committed to do in The Way Forward: A Vision for Sustainability and Growth in Newfoundland and Labrador. All actions have been coded to identify whether they relate to mitigation, clean economic growth or adaptation, using the icons shown below.



mitigation



green economic  
growth



adaptation

Pollution

Low-Carbon Economy

Carbon Dioxide

Reduction Targets

Methane

GHG

Clean Technology

Energy Efficiency

Clean Growth

Large Industry

Market Transformation

Innovation

Low-Carbon Economy

Polluter Pays

Climate Change

Green Economy

Mitigation

Fossil Fuels

Engagement

Nitrous Oxide

Partnership

Pan-Canadian Framework



Carbon Program



## 4.1 Carbon Program

### Objective:

**Implement a made-in Newfoundland and Labrador approach to pricing carbon**

In 2018, the Federal Government put in place legislation to introduce carbon pricing in 2019, unless a province or territory had its own system in place that met minimum federal requirements. Among other items, the Federal Government required that a price on carbon had to have broad coverage across the economy and be implemented in a timely fashion. The minimum federally-mandated carbon price starts at \$20 per tonne of GHG emissions in 2019 (equivalent, for example, to 4.42 cents per litre of gasoline) and will rise by \$10 per tonne each year until it reaches \$50 per tonne by 2022 (equivalent to 11.05 cents per litre of gasoline).

### Action to Date

- ▶ Following extensive consultations, the Provincial Government developed a “made-in Newfoundland and Labrador” carbon program tailored to the province’s unique circumstances. The provincial program was approved by the Federal Government on October 23, 2018
- ▶ Amendments to the Revenue Administration Act and the Management of Greenhouse Gas Act were passed by the House of Assembly in December 2018. These amendments provided for the introduction of a federally-mandated price on carbon and finalized the performance standards system for large industrial facilities.
- ▶ To allow the provincial carbon program to apply to the offshore area and following the introduction of amendments to the federal Atlantic Accord implementation act to Parliament in October 2018, parallel amendments to the Newfoundland and Labrador Atlantic Accord implementation act were passed by the House of Assembly in December 2018.



# Carbon Program

Climate change is caused by the release of GHG emissions into the atmosphere, mainly from the burning of fossil fuels such as oil, natural gas and coal. The growing concentration of GHGs in the Earth's atmosphere is affecting the climate and causing adverse impacts, such as increased flooding and storm surges.

The concept of putting a price on carbon is straightforward – the person or entity that emits the carbon pollution should pay for the damage their pollution causes. By establishing a price on carbon pollution, emitters are incentivized to reduce their emissions through, for example, increased energy efficiency or fuel switching to cleaner energy.

Aside from shifting the cost of pollution to the emitters, establishing a carbon program also stimulates greater innovation and deployment of clean technologies as industry, businesses, governments and individuals are more motivated to reduce their emissions. The development of new technologies creates opportunities for economic growth and new jobs.

Although carbon programs can take different forms, an effective price on carbon sends a clear, long-term signal to individuals and companies – economists think a price on carbon is most effective when individuals and companies know that it will rise in a predictable way over time.

From 2019, carbon pricing will be implemented in all provinces and territories. Newfoundland and Labrador, Nova Scotia, Quebec (since 2014), Alberta (since 2007), British Columbia (since 2008) and the Northwest Territories are implementing their own carbon programs. The Federal Government is implementing its carbon pricing system in New Brunswick, Ontario, Manitoba, Yukon and Nunavut. In Prince Edward Island and Saskatchewan, the Federal Government is implementing its carbon pricing in those parts of their economies that are not covered by their respective provincial systems.

There are three forms of carbon pricing being implemented across Canada: an economy-wide carbon tax in British Columbia and the Northwest Territories; an economy-wide emissions trading system in Nova Scotia and Quebec; and a hybrid system in all other provinces and territories, including Newfoundland and Labrador. A hybrid system comprises two components – a performance standard system for the large industrial facilities and largescale electricity generation; and a carbon price on all other fossil fuels consumed in the economy, except where exemptions exist.



In the 2016 Pan-Canadian Framework on Clean Growth and Climate Change, the province committed to developing its own made-in Newfoundland and Labrador approach to putting a price on carbon that would be tailored to local circumstances.

- ▶ Maintaining competitiveness from taxation and trade perspectives;
- ▶ Minimizing the impact on consumers and vulnerable groups;
- ▶ Recognizing the very large ongoing investment to decarbonize electricity; and
- ▶ Delivering meaningful reductions in GHG emissions.

As of January 1, 2019, the Provincial Government began implementation of a “hybrid” carbon program, comprising two elements:

- ▶ A carbon price applied to combusted fossil fuels across the economy, except where exemptions are provided; and
- ▶ A performance standard system for large industrial facilities and large-scale electricity generation that emit more than 25,000 tonnes of GHG emissions per year.

The provincial carbon program is projected to reduce cumulative GHG emissions by over 0.65 million tonnes between 2019-2030. In addition, further GHG reductions will be achieved as a result of a new bilateral agreement with the Federal Government that will provide for up to \$89.4 million in combined provincial investments and federal funding through the Low Carbon Economy Leadership Fund over four years; and over \$300 million in federal funding for green infrastructure under the Investing in Canada Fund, \$136 million of which will be invested in climate change mitigation projects over the next 10 years. Through strategic investments, our government will collaborate with the Federal Government, communities, Indigenous governments and organizations, non-profit organizations and the private sector to improve energy efficiency and switch to cleaner fuels, like renewable electricity, to reduce GHG emissions, while at the same time creating jobs for Newfoundlanders and Labradorians.

**To reduce GHGs while protecting the competitiveness of large industry, the Provincial Government will:**

- ▶ Implement a performance standards system for onshore and offshore industry and large-scale electricity generation under the Management of Greenhouse Gas Act from January 1, 2019.
- ▶ Introduce a program to help industry improve its energy efficiency and lower GHG emissions, with combined provincial investments and federal funding through the Low Carbon Economy Leadership Fund.

**To reduce GHGs emitted from the burning of fossil fuels in other sectors of the economy, the Provincial Government will:**

- ▶ Introduce a provincial carbon price through the Revenue Administration Act in a manner tailored to local circumstances; January 1, 2019.
- ▶ Introduce new programs to assist businesses, governments, not for profit organizations, and households reduce their GHG emissions, with combined provincial investments and federal funding through the Low Carbon Economy Leadership Fund.





## Actions: Carbon Pricing



4.1.1 Implement a made-in Newfoundland and Labrador approach to carbon pricing from January 1, 2019 that has broad coverage of the economy, delivers meaningful GHG reductions and is tailored to the economic, social and fiscal realities of the province.



4.1.2 Implement programs co-funded by the Federal and Provincial Governments through the Low Carbon Economy Leadership Fund to assist industry, businesses, municipalities, Indigenous organizations and governments, not-for-profit organizations and households reduce their GHG emissions.



4.1.3 Strengthen capacity of the private sector to understand and effectively respond to the carbon program, and take advantage of economic opportunities arising from carbon pricing.





Clean Economy





## 4.2 Clean Economy

### Objective:

**Implement initiatives to achieve clean economic growth in Newfoundland and Labrador**

The term clean economy is generally defined as an economy that generates jobs and investment while also preserving and enhancing the environment. Clean economic activity typically includes those initiatives that enable renewable energy production, increase energy efficiency, enhance sustainable resource management, and conserve natural resources.

Consumers, businesses and governments are increasingly aware of the impacts their purchasing decisions can have on the environment and are seeking more environmentally-responsible products and services. As a result, there are growing markets for products and technologies that can deliver similar or better outcomes with a lower carbon footprint. Action to address climate change can help to stimulate growth in the clean economy, which will generate economic opportunities and jobs from the development and deployment of environmentally-sustainable products and services.

With completion of the Muskrat Falls Hydroelectric Project and the forthcoming closure of the Holyrood Generating Station, 98 per cent of electricity consumed in the province will be generated from renewable energy. This project will also allow for the export of clean electricity to other jurisdictions to assist them to reduce their GHG emissions.

Through existing strategies and policies, the Provincial Government has committed to undertake action to transform markets for goods and services that are more energy efficient and emit lower GHGs. This includes, among other items, renewable energy solutions; the design and construction of energy efficient buildings; investments in sustainable agriculture, aquaculture and forestry activities; investments in the development of clean technologies; modern waste management infrastructure; and investments in sustainable tourism. Actions within this focus area demonstrate Provincial Government leadership and emphasize private sector supports to promote clean economic development.

## Action to Date

- ▶ Minimum energy efficiency requirements were adopted for the construction of new homes and small buildings.
- ▶ Over 230 construction professionals were trained on building energy-efficient homes and large buildings and two supporting guides were published.
- ▶ “Buying Green: A Guide for Purchasing Environmentally Preferable Products” was developed and published, in consultation with business, to better integrate climate change considerations into procurement.
- ▶ A review of business supports was completed to improve environmental performance in the private sector.
- ▶ The Government of Newfoundland and Labrador provided funding to support SmartICE, an award-winning social enterprise that provides near real-time sea ice monitoring and information services, by integrating Inuit traditional knowledge with state-of-the-art technology. This investment supports the commercialization of SmartBUOY prototype instrumentation, used for measuring sea ice thickness, and the establishment of a technology production centre in Nain to be operated by trained Inuit youth.
- ▶ A Landfill Gas Collecting and Flaring System has been developed to capture and flare methane gas at Robin Hood Bay. Flared methane is combusted rather than being released through anaerobic digestion, which results in lower GHG emissions.



## Actions: Green Economy



4.2.1 Develop and implement an environmental procurement policy for application through the Public Procurement Act in consultation with external stakeholders.



4.2.2 Build local supplier capacity to take advantage of, and thrive in, procurement processes that incorporate environmental considerations.



4.2.3 Build and strengthen early-stage clean technology innovation and research, development and demonstration, and accelerate clean technology commercialization.



4.2.4 Support private sector capacity to reduce their carbon footprint and transition to a low-carbon economy, through improved access to funding opportunities and clean technology development to enhance competitiveness in local and export markets.



4.2.5 Increase the amount of waste diverted to landfills from government buildings and develop metrics to measure and report on progress.



4.2.6 Seek opportunities to develop renewable and low-carbon energy for local and export markets (e.g. hydro, wind, tidal, hydrogen and smart grid technology).



4.2.7 Work with stakeholders, including Indigenous governments and organizations and Newfoundland and Labrador Hydro, to identify opportunities to reduce diesel electricity generation in the province's isolated diesel-powered communities.



4.2.8 Encourage and support the efforts of industry organizations to communicate sustainable tourism development opportunities with operators.



4.2.9 Work with the Federal Government to improve the energy efficiency of product standards and codes.



Transportation



## 4.3 Transportation

### Objective:

**Implement policies that reduce GHG emissions in the transportation sector by promoting fuel efficiency, alternatively-fuelled vehicles and active transportation**

Transportation is one of the largest contributors to GHG emissions in the province. Approximately two-thirds of transportation emissions are from road transportation, and the remainder are from marine, air and rail.

While transportation emissions will be subject to the carbon program outlined above, there are additional complementary opportunities that can be pursued. At the federal level, for example, increased fuel efficiency requirements are being implemented and infrastructure investments in public transit are being advanced. At the provincial level, renewable electricity from Muskrat Falls presents new opportunities to reduce GHG emissions through vehicle electrification. Actions within this focus area seek to reduce transportation emissions through measures that complement the carbon program.





## Action to Date

- ▶ A Vehicle Efficiency and Cost Calculator was developed to help consumers make informed purchase decisions by providing factual information on fuel costs and GHG emissions, including for electric vehicles.
- ▶ Information on fuel-efficient driving techniques was integrated into the Provincial Road User's Manual and the written test for a Learner's License.
- ▶ A comprehensive study was published, assessing the current state of electric vehicle technology, infrastructure requirements and market developments.
- ▶ Fishing vessel energy and operational efficiency audits were completed for six vessels. Support was provided to harvesters for the purchase of longline systems and automatic jigger technology to reduce time at sea and vessel fuel consumption, as well as the development of energy-efficient and environmentally-friendly trawls.
- ▶ Workshops were held on fishing vessel design and innovation to improve energy performance of vessels, and a study was completed on fishing vessel designs.



## Actions: Transportation



4.3.1 Develop a comprehensive long-term strategy to increase electric vehicle penetration in consultation with the electric utilities, municipalities and industry.



4.3.2 Explore opportunities to electrify marine ports, truck stops and public transit, in consultation with stakeholders, to reduce GHG emissions.



4.3.3 Establish a program to support energy efficiency retrofits to heavy-duty trucks and trailers with provincial investments and federal funding through the Low Carbon Economy Leadership Fund.



4.3.4 Reduce GHG emissions from the Provincial Governments' vehicle fleet through incorporating fuel economy specifications into the procurement of vehicles, and right-sizing for their intended use and function.



4.3.5 Maximize travel efficiencies among government employees by providing education and outreach on fuel-efficient driving techniques, and promoting increased uptake of teleconference and videoconferencing services.



4.3.6 Work with stakeholders to promote active modes of transportation within municipal and Provincial Government policies, practice and planning guidelines to enhance healthy, active communities.







Agriculture, Forestry,  
Fisheries and Natural Areas





## 4.4 Agriculture, Forestry, Fisheries and Natural Areas

### Objective:

**Reduce GHG emissions from agriculture and forestry operations, enhance carbon sequestration, and provide supports to enhance resilience to the impacts of climate change**

Forests, soils, wetlands and bogs store a significant volume of carbon dioxide. When these resources are disturbed, whether through commercial activity or natural events such as forest fires or invasive pests, this carbon dioxide is released into the atmosphere. Managing these resources can play a significant role in combatting climate change, including through minimizing GHG emissions from commercial operations, and increasing and preserving their ability to store carbon dioxide.

GHG emissions from commercial activities in these sectors will be subject to the carbon pricing system outlined in section 4.1 unless otherwise exempt. However, there are additional complementary opportunities that can be pursued including opportunities to enhance carbon dioxide storage. Coinciding with this, are opportunities for enhanced adaptation measures to increase the resilience of these sectors. Actions within this focus area include measures to enhance carbon sequestration and augment efforts to build climate resilience in these sectors.





## Action to Date

- ▶ The Environmental Farm Plan Program supports producers to identify and mitigate environmental risks in agriculture.
- ▶ Research was conducted on opportunities to utilize shellfish and salmon by-products for feed and composting, and support was provided to launch a crustacean by-product fertilizer prototype into the consumer market.
- ▶ Funding was provided to reduce waste in fisheries, including site management and testing of finished compost from shrimp shells, shrimp and crab waste processing technology, and a marine waste stewardship program.
- ▶ The Forest Research Strategy, implemented through a partnership between Provincial and Federal Governments and Memorial University, includes commitments related to carbon sequestration modeling and monitoring and research related to invasive pests and species.



## Actions: Agriculture, Forestry, Fisheries and Natural Areas



4.4.1 Support the development and utilization of biofuels in the province.

4.4.2 Support the agriculture, aquaculture and fishing industries to increase food production in a manner that takes into consideration GHG emissions.

4.4.3 Enhance carbon sequestration in the forestry and agriculture sectors.

4.4.4 Work with agriculture, forestry, fisheries and aquaculture industries to increase knowledge and build resilience to changing climatic conditions, including increased precipitation and temperature, and invasive species and pests.





## Energy Use in Buildings and Homes







## 4.5 Energy Use in Buildings and Homes

### Objective:

**Increase energy efficiency and reduce GHG emissions from homes and buildings**

Buildings and homes consume energy for space heating and cooling, and for the operation of equipment, appliances and lighting. Designing, constructing, and renovating homes and buildings using energy-efficient products and techniques reduces GHG emissions while lowering energy costs and creating jobs. Actions within this focus area include the implementation of programs to enhance energy efficiency and reduce energy costs, and other measures to reduce GHG emissions from homes and buildings.



## Action to Date

- ▶ The Home Energy Conservation Pilot Project was implemented to determine if households would reduce electricity consumption when provided with real-time information on electricity use.
- ▶ Consultations and technical analysis was undertaken to examine the case for adopting the National Energy Code for Buildings in Newfoundland and Labrador.
- ▶ The award-winning HotShots program promoted energy efficiency and conservation to students across the province.
- ▶ The Residential Energy Efficiency Program provided low-income households with grants to improve energy efficiency.
- ▶ Two resource guides were developed on building energy-efficient homes and small buildings, and better building envelopes for large buildings, and training on the guides was provided to industry professionals.
- ▶ The three-year Home Energy Savings Program was launched in 2017-18 to provide grants of up to \$5,000 to low income households, reliant on electric heat, for energy efficiency retrofits.



## Actions: Energy Use in Buildings and Homes



4.5.1 Continue to implement the Energy Efficiency Loan Program to make low-interest financing available to households for energy efficiency upgrades.



4.5.2 Expand the Home Energy Savings Program to low-income households who rely on heating oil to improve the energy efficiency of their homes, with provincial investments and federal funding through the Low Carbon Economy Leadership Fund.



4.5.3 Implement a program to provide incentives to households that rely on heating oil to improve the energy efficiency of their homes, with provincial investments and federal funding through the Low Carbon Economy Leadership Fund.



4.5.4 Invest in energy efficiency and fuel switching in buildings owned by the Provincial Government and its agencies, boards and commissions, with provincial investments and federal funding through the Low Carbon Economy Leadership Fund.



4.5.5 Construct provincially-funded buildings to high energy efficiency and environmental standards, consistent with government's commitment to build better buildings.



4.5.6 Ensure that government-owned buildings are energy-efficient and environmentally sound by pursuing appropriate third-party certification.



4.5.7 Establish minimum energy efficiency requirements for commercial and institutional buildings.





## Infrastructure, Planning and Development





## 4.6 Infrastructure, Planning and Development

### Objective:

**Build capacity to enhance integration of climate change tools and resources into planning, asset management and infrastructure development**

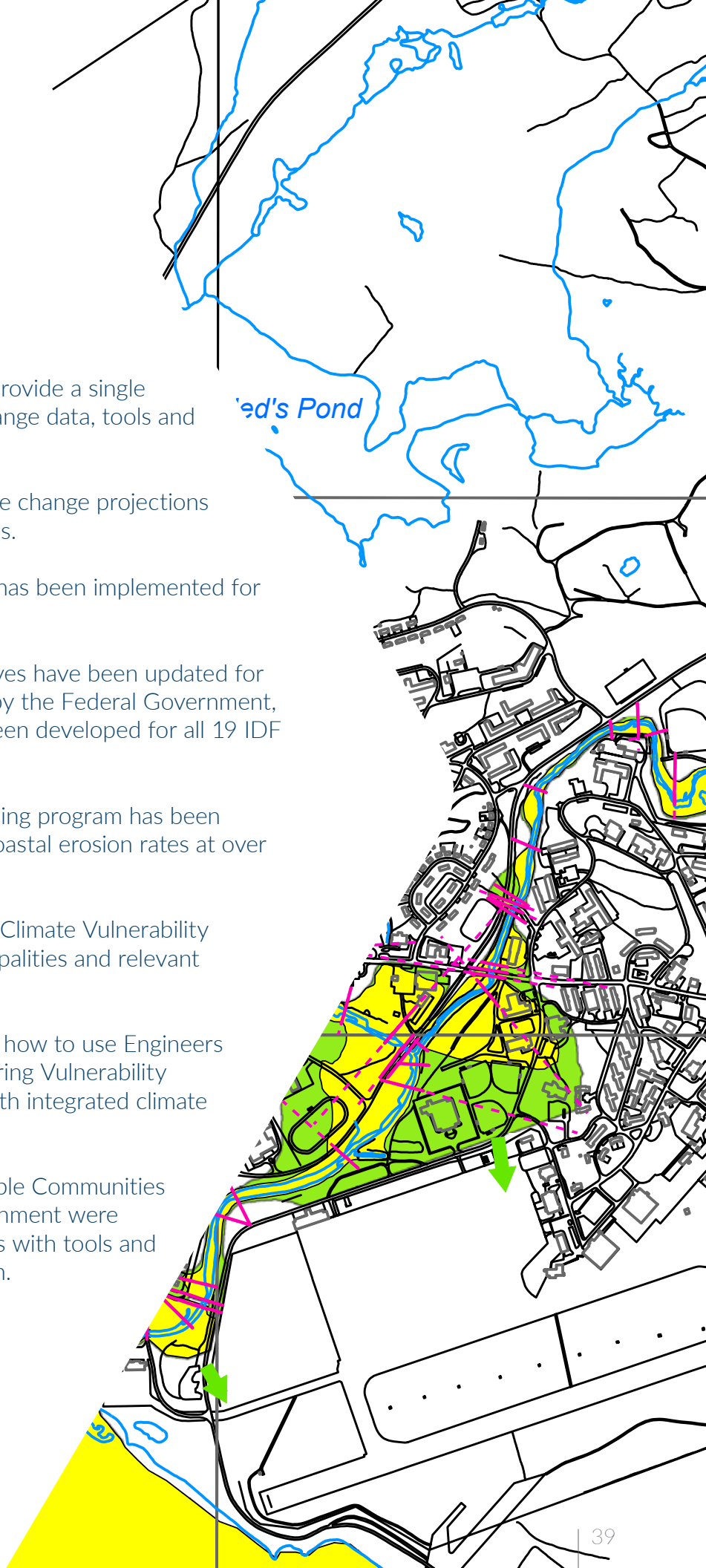
Long-term sustainability is heavily influenced by the way infrastructure is constructed and managed, and communities are developed. Planning infrastructure investments, implementing municipal zoning regulations, and determining site location for buildings to withstand changing climatic conditions is key to improving resilience to climate impacts.

The Provincial Government provides a suite of climate change information, tools, and resources that are necessary for public and private decision makers to complete better planning exercises, make informed decisions, and reduce risks associated with climate change. This focus area outlines government's commitment to enhance the integration of climate considerations into infrastructure decisions and community planning, and to build capacity amongst stakeholders to use climate adaptation tools and resources.



## Action to Date

- ▶ A Climate Data portal was created to provide a single point of entry for provincial climate change data, tools and resources.
- ▶ Flood risk maps that incorporate climate change projections have been developed for eight locations.
- ▶ A hurricane season flood alert system has been implemented for 45 locations.
- ▶ Intensity-duration-frequency (IDF) curves have been updated for 13 locations not currently maintained by the Federal Government, and climate change projections have been developed for all 19 IDF curve locations.
- ▶ A coastal erosion monitoring and mapping program has been established, and monitors and tracks coastal erosion rates at over 120 locations.
- ▶ The 7 Step Tool to Assess Community Climate Vulnerability was developed and shared with municipalities and relevant stakeholders.
- ▶ Customized training was developed on how to use Engineers Canada's Public Infrastructure Engineering Vulnerability Committee (PIEVC) assessment tool with integrated climate data for the province.
- ▶ Two studies in support of the Sustainable Communities Initiative led by the Nunatsiavut Government were supported to provide Inuit communities with tools and resources on climate change adaptation.





## Actions: Infrastructure, Planning and Development



4.6.1 Widely disseminate climate projections for Newfoundland and Labrador, which take into account most recent global and regional climate trends.



4.6.2 Implement and enhance the coastal erosion and monitoring program.



4.6.3 Support the development and dissemination of climate research, analysis and information to improve understanding of climate impacts.



4.6.4 Continue to integrate climate change into flood risk maps, implement the hurricane season flood alert system and strengthen climate monitoring.



4.6.5 Raise awareness, increase understanding and build capacity of external stakeholders and governments to integrate climate change into decision-making on infrastructure and planning.



4.6.6 Support disaster mitigation through updates to municipal emergency management plans, and identifying and implementing prevention and mitigation opportunities in partnership with communities.



4.6.7 Ensure climate change is a core consideration in the development and implementation of asset management.



4.6.8 Apply a climate lens to the Environmental Assessment review process, to ensure that climate change considerations are appropriately taken into account.



4.6.9 Integrate climate change considerations and factor climate change projections into government infrastructure development decisions.



4.6.10 Work with the Federal Government and Indigenous governments and organizations to support the development and implementation of a Northern Adaptation Strategy that includes Labrador.



Health and Well-being



## 4.7 Health and Well-being

### Objective:

**Address climate change-related health risks through integrating climate change considerations into provincial health initiatives**

There is a heightened recognition that climate change is impacting health and well-being. Increased temperatures are linked to a heightened risk of vector-borne diseases such as Lyme disease, respiratory illnesses such as asthma, as well as allergies. Increasing temperatures are also contributing to changing sea ice conditions in northern and Indigenous communities. This is limiting access to traditional hunting grounds and transportation routes to adjacent communities, which can affect travel safety, food security, as well as mental health due to increased isolation and reduced access to cultural activities.

This focus area outlines government's commitment to build resilience to climate change-related health risks, including for northern and Indigenous communities that are especially vulnerable to climate impacts.





## Action to Date

- ▶ The impacts of climate change on weather systems in Newfoundland and Labrador are incorporated into health emergency management planning for the health system.
- ▶ Health emergency planning officials consider extreme heat and air quality issues in planning for health care needs of the population.
- ▶ Eastern Health's Provincial Public Health Laboratory, and the Department of Health and Community Services' Communicable Disease Control reporting systems are alert to new reports of zoonotic diseases that could be suggestive of ecological changes.
- ▶ The Department of Health and Community Services has undertaken initiatives to reduce energy use in their operations through energy performance contracts at two of the Regional Health Authorities, the purchase of Energy Star products, and increased use of videoconferencing to reduce travel.



## Actions: Health and Well-being



4.7.1 Implement a surveillance program for the province to monitor the incidence and spread of ticks and Lyme disease, resulting from changing climatic conditions.



4.7.2 Incorporate climate change considerations into health-related planning, health system emergency planning, and the health alert system.



4.7.3 Apply a climate change lens to implementing Indigenous commitments in the Mental Health and Addictions Action Plan in developing programming in Indigenous communities.







## Education and Outreach







## 4.8 Education and Outreach

### Objective:

**Increase education to incite action on climate change**

Enhancing education and outreach is key to inspiring action on climate change, and building a more sustainable Newfoundland and Labrador. There are many actions that can be taken at the local level, such as reducing waste, electricity use and fuel consumption, and everyone has a role to play.

Governments can take action and demonstrate leadership by enhancing the sustainability of their operations, and also promote action at the local level. Actions within this focus area outline government's commitment to increase awareness through education and outreach, working with community partners as well as the public more broadly. Additional efforts to build capacity and awareness across specific sector areas are included within the respective focus areas of this plan.



## Action to Date

- ▶ The award-winning Turn Back the Tide website was designed as a one-stop shop to provide user-friendly and authoritative information and resources to individuals, businesses and communities on how they can improve their energy efficiency and reduce their carbon footprint.
- ▶ The HotShots initiative promoted energy efficiency and conservation among students and teachers in the province. Through this initiative, new teaching resources on energy efficiency were distributed to all 263 public schools in Newfoundland and Labrador in both English and French.
- ▶ A two-year pilot project was launched to determine whether the use of a real-time monitor feedback device, providing electricity consumption information to consumers and educational material, would result in energy conservation.
- ▶ The Get to Half awareness and public education campaign was launched to help change waste management behaviours in the province.



## Actions: Education and Outreach



4.8.1 Increase public awareness to deepen understanding of climate change.



4.8.2 Build awareness and a culture of environmental sustainability within the Provincial Government that facilitates understanding of how government employees can contribute to action on climate change.



4.8.3 Raise awareness and build capacity of municipalities to enhance integration of climate change into their operations and community outreach.







This plan takes a whole-of government approach to tackling climate change, and, as such, actions within this plan will be led by departments and agencies across the Provincial Government, in collaboration with partners. To ensure transparency and accountability of this plan, and provincial action on climate change, we will report on progress half way through the five-year plan, and again at the end of the plan's duration.

While the majority of the actions outlined are intended to be completed within the timeframe of this plan, some items are longer-term initiatives that will span beyond the five-year period. In the final report for this plan, we will outline our continued approach to achieving these enduring initiatives and further advancing climate action in Newfoundland and Labrador.







Municipal Affairs and Environment  
Climate Change Branch  
P.O. Box 8700  
St. John's, NL A1B 4J6  
Tel: 709.729.1210  
[climatechange@gov.nl.ca](mailto:climatechange@gov.nl.ca)

[gov.nl.ca/exec/occ/index.html](http://gov.nl.ca/exec/occ/index.html)

